JC13 Rec'd PCT/PTU 20 MAR 2002

FORM PTO-1390 (REV 11-2000)			F COMMERCE PATENT AND TRADEMARK OFFIC	CE. JATTORNE'S DOCKET NUMBER 34-116						
(1.2.1			R TO THE UNITED STATES	U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5)						
			TED OFFICE (DO/EO/US)	10/08.8647						
INTE	RNA	TIONAL APPLICATION NO.	ING UNDER 35 U.S.C. 371 INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED						
",		PCT/GB00/03414	06/09/2000	20/09/1999						
		INVENTION		J						
1111	_E Or	INVENTION	MANUFACTURE OF DATA STOR	AGE DEVICES						
APF	LICA	NT(S) FOR DO/EO/US	0500100 0 1 1							
			GERRARD, C. et al.							
App 1.	licant		of items concerning a filing under 35 U.S	/EO/US) the following items and other information:						
2.			EQUENT submission of items concerning							
3.	. 			(35 U.S.C. 371(f)). The submission must include						
J.		items (5), (6), (9) and (21)		(00 0.0.0. 07 (())). The basimosisti mast measure						
4.	•	The U.S. has been elected to	by the expiration of 19 months from the p	riority date (Article 31).						
5.	A cc	ppy of the International Applica	ation as filed (35 U.S.C. 371(c)(2)).							
	a.	is attached hereto (req	uired only if not communicated by the Inf	ternational Bureau).						
	b.	As been communicate	ed by the International Bureau.							
	c.	is not required, as the	application was filed in the United States	Receiving Office (RO/US).						
6.		An English language transla	tion of the International Application as fil	ed (35 U.S.C. 371(c)(2)).						
	a.	s attached hereto.								
	b.	has been previously su	ubmitted under 35 U.S.C. 154(d)(4).							
7.		Amendments to the claims of	of the International Application under PC	T Article 19 (35 U.S.C. 371(c)(3))						
	a.	are attached hereto (re	equired only if not communicated by the l	nternational Bureau).						
	b.	have been communication	ted by the International Bureau.							
	C.	have not been made; h	nowever, the time limit for making such a	mendments has NOT expired.						
	d.	have not been made a	nd will not be made.							
8.		An English language transla	tion of the amendments to the claims un	der PCT Article 19 (35 U.S.C. 371(c)(3))						
9.		An oath or declaration of the	inventor(s) (35 U.S.C. 371(c)(4)).							
10.		A English language translati Artıcle 36 (35 U.S.C. 3		eliminary Examination Report under PCT						
	Items 11 To 20 below concern document(s) or information included:									
11.		An Information Disclosure S	tatement under 37 C.F.R. 1.97 and 1.98.							
12.		An assignment document fo	r recording. A separate cover sheet in c	ompliance with 37 C.F.R. 3.28 and 3.31 is included.						
13.	\boxtimes	A FIRST preliminary amend	ment.							
14.		A SECOND or SUBSEQUE	NT preliminary amendment.							
15.		A substitute specification.								
16.		A change of power of attorn	ey and/or address letter.							
17.		A computer-readable form of	f the sequence listing in accordance with	PCT Rule 13ter.2 and 35 U.S.C. 1 821-1.825.						
18.			olished international application unde							
19.				al application under 35 U.S.C. 154(d)(4).						
20.	\boxtimes	Other items or information.	-							

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)-(5)·			<u>``</u>	ALCOLATIONS			_
BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5): Neither international preliminary examination fee (37 C.F.R. 1.482) nor international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO										
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but all claims did not satisfy provisions of PCT Article 33(1)-(4)										
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CLAIMS	NUMBER		NUMBER EXTRA	R	ATE					
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NIXON & VANDERHYE 1100 North Glebe Road,	8 th Floor				\bigcirc					
Arlington, Virginia 22201	-4714				N1 *					
Telephone: (703) 816-40	00			Larry S.	Nixon	<u>,</u>				
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				25,640			March 20, 2	2002		_
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

GERRARD, C. et al.

Atty. Ref.: 34-116

Serial No. unknown

Group:

Filed: March 20, 2002

Examiner:

For: MANUFACTURE OF DATA STORAGE DEVICES

* * * * * * * * * *

March 20, 2002

Assistant Commissioner for Patents Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

In order to place the above-identified application in better condition for examination, please amend the application as follows:

IN THE SPECIFICATION

Please substitute the following paragraphs in the specification for corresponding paragraphs previously presented. A copy of the amended specification paragraphs showing current revisions is attached.

Page 1, before the first line, please insert as a separate paragraph:

This application is the US national phase of international application PCT/GB00/03414 filed 6 September 2000, which designated the US.

IN THE CLAIMS

Please substitute the following amended claims for corresponding claims previously presented. A copy of the amended claims showing current revisions is attached.

- 4. A device according to claim 1 comprising an indirect drive arrangement for driving the rotary carrier, the drive arrangement comprising a motor mounted independently of the rotary carrier, and a coupling for transmitting the drive to the rotary carrier whilst minimising the transmission of any undesirable vibration.
- 5. A device according to Claim 4 in which the coupling comprises a resilient coupling disposed in substantially axial alignment with the rotary carrier.
- 6. A device according to Claim 4 in which the coupling comprises a drive belt.
- 7. A device according to claim 1 comprising an indirect drive arrangement for driving the rotary carrier, the drive arrangement comprising a motor mounted independently of the rotary carrier, and a drive belt for transmitting the drive to the rotary carrier.
- 8. A device according to Claim 2 in which at least one of the air bearings comprises a rotary spindle, and an associated indirect drive arrangement is provided for

driving the spindle, the drive arrangement comprising a motor mounted independently of the respective spindle and coupling for transmitting the drive to the respective spindle whilst minimising the transmission of any undesirable vibration.

- 9. A device according to Claim 2 in which at least one of the air bearings comprises a rotary spindle, and associated indirect drive arrangement is provided for driving the spindle, the indirect drive arrangement comprising a motor mounted independently of the respective spindle and a drive belt for transmitting the drive to the rotary spindle.
- 10. A device according to claim 1 which is arranged for writing to and verifying at least one of a hard magnetic disc, and a CD Rom.
- 14. A device according to Claim 12 in which the coupling means comprises a resilient coupling means disposed in substantially axial alignment with the rotary carrier.
- 15. A device according to Claim 12 in which the coupling means comprises a drive belt.
- 16. A device according to Claim 12 in which at least one of the rotary carrier, the certified head and the write head is carried on an air bearing.

- 17. A device according to Claim 13 in which the coupling means comprises a resilient coupling means disposed in substantially axial alignment with the rotary carrier.
- 18. A device according to Claim 13 in which the coupling means comprises a resilient coupling means disposed in substantially axial alignment with the rotary carrier.

Please add new claims 19-21:

- 19. (New) A device according to any one of Claims 13 in which at least one of the rotary carrier, the certified head and the write head is carried on an air bearing.
- 20. (New) A device for preparation of a media storage disc comprising:

 a single monolithic support platform, a rotary carrier supported on said

 platform and arranged for rotation of a media disc on an air bearing system, the carrier

 being driven by a motor mounted independently of the rotary carrier and arranged to

 drive the carrier via a resilient coupling; and

a write head arranged for substantially radial movement relative to said carrier and for servowriting of data to said media disc, the write head being carried on an air bearing system.

21. (New) A device for preparation of a media storage disc comprising:

a single monolithic support platform, a rotary carrier supported on said

platform and arranged for rotation of a media disc on an air bearing system, the carrier

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being driven by a motor mounted independently of the rotary carrier and arranged to drive the carrier via a drive belt; and

a write head arranged for substantially radial movement relative to said carrier and for servowriting of data to said media disc, the write head being carried on an air bearing system.

REMARKS

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page(s) is captioned "Version With Markings To Show Changes Made."

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

Page 1, before the first line, please insert as a separate paragraph:

This application is the US national phase of international application PCT/GB00/03414 filed 6 September 2000, which designated the US.

IN THE CLAIMS

- 4. A device according to any preceding claim 1 comprising an indirect drive means arrangement for driving the rotary carrier, the drive means arrangement comprising a motor mounted independently of the rotary carrier, and a coupling means for transmitting the drive to the rotary carrier whilst minimising the transmission of any undesirable vibration.
- 5. A device according to Claim 4 in which the coupling means comprises a resilient coupling means disposed in substantially axial alignment with the rotary carrier.
- 6. A device according to Claim 4 in which the coupling means-comprises a drive belt.
- 7. A device according to any one of claims 1 to 3 comprising an indirect drive means arrangement for driving the rotary carrier, the drive means arrangement comprising

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a motor mounted independently of the rotary carrier, and a drive belt for transmitting the drive to the rotary carrier.

- 8. A device according to Claim 2 or Claim 3-in which at least one of the air bearings comprises a rotary spindle, and an associated indirect drive meansarrangement is provided for driving the spindle, the drive meansarrangement comprising a motor mounted independently of the respective spindle and coupling means-for transmitting the drive to the respective spindle whilst minimising the transmission of any undesirable vibration.
- 9. A device according to Claim 2-or Claim-3 in which at least one of the air bearings comprises a rotary spindle, and associated indirect drive means arrangement is provided for driving the spindle, the indirect drive means arrangement comprising a motor mounted independently of the respective spindle and a drive belt for transmitting the drive to the rotary spindle.
- 10. A device according to any preceding claim 1 which is arranged for writing to and verifying at least one of a hard-or floppy magnetic disc, and or a CD Rom.
- 14. A device according to Claim 12 or Claim-13-in which the coupling means comprises a resilient coupling means disposed in substantially axial alignment with the rotary carrier.

- 15. A device according to Claim 12 or 13 in which the coupling means comprises a drive belt.
- 16. A device according to any one of Claims 12 to 15 in which at least one of the rotary carrier, the certified head and the write head is carried on an air bearing.
- 17. A device according to Claim 13 in which the coupling means comprises a resilient coupling means disposed in substantially axial alignment with the rotary carrier. for preparation of a media storage disc comprising:

a single monolithic support platform, a rotary carrier supported on said

platform and arranged for rotation of a media disc on an air bearing system, the

carrier being driven by a motor mounted independently of the rotary carrier and arranged

to drive the carrier via resilient coupling means; and

a write head arranged for substantially radial movement relative to said carrier and for servowriting of data to said media disc, the write head being carried on an air bearing system.

18. A device according to Claim 13 in which the coupling means comprises a resilient coupling means disposed in substantially axial alignment with the rotary carrierfor preparation of a media storage disc comprising:

a single monolithic support platform, a rotary carrier supported on said platform and arranged for rotation of a media disc on an air bearing system, the carrier being driven by a motor mounted independently of the rotary carrier and arranged to drive the carrier via a drive belt; and

a write head arranged for substantially radial movement relative to said 15 carrier and for servowriting of data to said media disc, the write head being carried on an air bearing system.

Please add new claims 19-21:

- 19. (New) A device according to any one of Claims 13 in which at least one of the rotary carrier, the certified head and the write head is carried on an air bearing.
- 20. (New) A device for preparation of a media storage disc comprising:

 a single monolithic support platform, a rotary carrier supported on said

 platform and arranged for rotation of a media disc on an air bearing system, the carrier

 being driven by a motor mounted independently of the rotary carrier and arranged to

 drive the carrier via a resilient coupling; and

a write head arranged for substantially radial movement relative to said carrier and for servowriting of data to said media disc, the write head being carried on an air bearing system.

21. (New) A device for preparation of a media storage disc comprising:

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a single monolithic support platform, a rotary carrier supported on said

platform and arranged for rotation of a media disc on an air bearing system, the carrier

being driven by a motor mounted independently of the rotary carrier and arranged to

drive the carrier via a drive belt; and

a write head arranged for substantially radial movement relative to said carrier and for servowriting of data to said media disc, the write head being carried on an air bearing system.

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Manufacture of data storage devices

This invention relates to the manufacture of data storage devices such as magnetically and optically written discs. Examples are hard and floppy magnetic discs as used in personal computers where the data is written in magnetically as well as CD ROMs which normally have data written in optically, i.e. usually by laser beam.

The invention relates specifically to the stage of manufacture of the storage device where indexed tracks or sectors are created. These are necessary so that the data recording and reproducing systems can identify the location of data put into and read out from the storage device. Moreover for high quality performance these indexed tracks or sectors have to be very accurately provided on the storage device.

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This manufacture involves separate stages wherein the media is examined (certified) and written to (servo written). Current practice requires separate discrete pieces of equipment to perform these tasks at separate stages of manufacture.

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The tasks all require the rotation of the media disc with extreme quality of

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motion while magnetic or other heads and sensors are moved across the surface with controlled motion, positional relationships and geometry. In this regard there are normally two separate units, one of which, generally referred to as a servo-writer writes the sectors to the disc, and the other, generally referred to as a verifier, verifies the surface(s) of the disc, usually optically.

The aim of this invention is to provide a particularly accurate and simple arrangement for performing these tasks, and accordingly the invention provides a single platform with the ability to carry all the systems required to perform these tasks, particularly to both verify the surface and write the sectors, at one stage within the manufacturing process.

Accordingly one aspect of the invention comprises a single monolithic support platform, a rotary carrier arranged for rotation of a media disc supported on said platform, a write head arranged for substantially radial movement relative to said carrier and for servo writing of data to said media disc and a certifier head arranged for substantially radial movement relative to said carrier and for verification of the media disc.

For the ultimate in quality of motion some or preferable all such motion systems should be carried on air bearings. In a preferred construction the

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mountings for all of these air-bearing systems should be a single and solid component incorporating the maximum rigidity providing a common datum for each discrete process.

- Accordingly a preferred form of the present invention utilises a single body to carry all the air bearing systems required to perform all the processes needed for the media to be installed in a disc drive or other data storage device. All motion systems thus contained can then be capable of simultaneous operation.
- Respective drive means are typically provided for driving each of the moving components, namely, the rotary carrier, the write head and certifier head. One or more of the drive means may comprise an integrated motor which is arranged for directly driving a rotary spindle, or other member, supporting the respective component. Providing integrated drive means eases manufacture and alignment of the constituent parts of the device.

One or more of the drive means may be an indirect drive means comprising a motor which is mounted independently of the respective component, and coupling means for transferring the drive to the respective component whilst minimising the transmission of any undesirable vibration. In some embodiments, the coupling means may be a resilient coupling means disposed

in substantially axial alignment with a rotary spindle of the respective component. In other embodiments, the coupling means may comprise a drive belt.

It is particularly preferred that indirect drive means are provided for driving the rotary carrier carrying the media disc. The use of indirect drive means can allow substantial mechanical isolation of the motor from sensitive parts of the device. In particular, the indirect drive can help to prevent harmful vibrations being transmitted to the media disc or the servowriter head, which might otherwise cause track errors.

According to another aspect of the invention there is provided a method as defined in Claim 11.

According to yet another aspect of the invention there is provided a method as defined in Claim 12.

According to a further aspect of the invention there is provided a method as defined in Claim 13.

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Embodiments of invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 shows a perspective view of a combination magnetic disc servowriter and certifier platform;

Figure 2 is a schematic side view of part of the platform shown in Figure 1, the platform being partly shown in section; and

Figure 3 is a schematic side view of part of an alternative platform, the alternative platform being partly shown in section.

Referring particularly to Figure 1, in a first embodiment, a common monolithic platform 1 is provided in the form of a single piece of material integrally forming a base support for three separate air bearing motion systems thereby guaranteeing the positional relationship of each to the media being processed.

This media in the form of a magnetic disc 2 is mounted on a motorised spindle 5 with integral position feedback and disc clamping.

A servowriting headstack 3 is mounted on a rotary spindle carried by an air bearing and is geometrically positioned in relation to the media spindle 5 so

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as to mimic the final data storage product take off read-rotation relationship. It is fitted with an integral accurate motion actuator and fittings for a separate position sensor. The monolithic platform 1 acts as a spindle block for both the disc carrier and the servowriting headstack spindles.

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A certifier headstack 4 is mounted on a linear air-bearing supported slide with integral linear motor and fittings for a separate position sensor. However, this motion system could also be of rotary design. In such a case the monolithic platform would also act as a spindle block for the certified headstack spindle.

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Figure 2 is a schematic side view of part of the device shown in Figure 1, part of the platform 1 being shown in section to more clearly show the motorised spindle 5 used for carrying the magnetic disc 2. The magnetic disc 2 and selected other parts of the device are omitted in Figure 2 for the sake of simplicity.

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The motorised spindle 5 generally comprises a rotary spindle or shaft 51 mounted in an air bearing 52 for rotation and axially supported by an axial bearing 53. Rotational drive of the rotary spindle 51 is provided by an integral motor. The integral motor comprises a stator 54 and a rotor 55 which carries a plurality of permanent magnets 56 and which is formed integrally with the

rotary spindle 51. Thus a direct drive is provided to the rotary carrier of the magnetic disc 2. It can be noted that all of the rotary carrier, the servowriting headstack and certified headstack are mounted on the support platform 1.

Figure 3 is a schematic side view of part an alternative embodiment. The alternative embodiment is similar to that described above except that the rotary carrier of the magnetic disc is indirectly driven. Again, in Figure 3, part of the platform 1 is shown in section to more clearly show the motorised spindle 5, whilst the magnetic disc 2 and selected other parts of the alternative device are omitted for the sake of simplicity.

In the alternative embodiment, the motorised spindle 5 similarly comprises a rotary spindle or shaft 51 mounted in an air bearing 52 for rotation and axially supported by an axial bearing 53. However rotational drive of the rotary spindle 51 is provided by an independent motor 6. The independent motor 6 is mounted on the support platform 1 but independently of the rotary spindle 51. Drive is transferred to the rotary spindle by way of a pair of pulleys 61 and a drive belt 62. Thus an indirect drive is provided to the rotary carrier of the magnetic disc 2 which can help to avoid undesirable vibrations being transmitted to the media disc or servo writing headstack.

In alternatives, a different form of drive coupling may be provided between an independent motor and the rotary carrier of the magnetic disc. This may take the form of a resilient solid or a fluid based coupling. Typically such a coupling will be disposed in alignment with both the axis of the rotary carrier and the axis of the motor.

In other alternatives, the independent motor in an indirect drive device can be mounted externally, and/or entirely independently of the monolithic platform block.

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In further alternatives, one or more of the motion systems may not be of an air bearing design but some form of mechanical device.

In operation of any of the embodiments described above, a newly machined and finished disc or stack of discs will be loaded onto the media spindle disc clamp, after which the spindle will spin up to the operating speed. The servowriting and certifying tasks are completely independent and may be carried out in any order or simultaneously. However, the certifying process, which is typically an optical examination of the disc surfaces, can be conducted much more quickly (in the order of 20 seconds) than the servowriting (say 20 minutes). Thus it is sensible to either certify first or simultaneously with the

start of the servowriting process. Preferably the servowriting and certifier headstacks will start their motion simultaneously allowing the integrity of the medium to be confirmed and the servo pattern to be written onto the disc. If the certifier identifies a faulty disc the process will be stopped and the disc discarded. After the process is complete the media will be ready for assembly into a disc drive or other data storage device. Using a device of the type described herein, it is possible to achieve track densities in the order of 40,000 tracks per inch.

Although not described in detail, systems similar to those described and within the scope of the present invention can be used for processing other types of media discs.

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CLAIMS:

- 1. A device for preparation of a media storage disc comprising a single monolithic support platform, a rotary carrier arranged for rotation of a media disc supported on said platform, a write head arranged for substantially radial movement relative to said carrier and for servo writing of data to said media disc and a certifier head arranged for substantially radial movement relative to said carrier and for verification of the media disc.
- A device according to Claim 1 in which the rotary carrier, the write
 head and the certifier head are all carried on air bearing systems.
 - 3. A device according to Claim 2 in which mountings for each of said air bearing systems are formed within said single monolithic support platform, thereby ensuring a common datum for both writing to and verifying the disc.

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4. A device according to any preceding claim comprising indirect drive means for driving the rotary carrier, the drive means comprising a motor mounted independently of the rotary carrier, and coupling means for transmitting the drive to the rotary carrier whilst minimising the transmission of any undesirable vibration.

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- 5. A device according to Claim 4 in which the coupling means comprises a resilient coupling means disposed in substantially axial alignment with the rotary carrier.
- 5 6. A device according to Claim 4 in which the coupling means comprises a drive belt.
 - 7. A device according to any one of claims 1 to 3 comprising indirect drive means for driving the rotary carrier, the drive means comprising a motor mounted independently of the rotary carrier, and a drive belt for transmitting the drive to the rotary carrier.
- 8. A device according to Claim 2 or Claim 3 in which at least one of the air bearings comprises a rotary spindle, and associated indirect drive means is provided for driving the spindle, the drive means comprising a motor mounted independently of the respective spindle and coupling means for transmitting the drive to the respective spindle whilst minimising the transmission of any undesirable vibration.
- 9. A device according to Claim 2 or Claim 3 in which at least one of the air bearings comprises a rotary spindle, and associated indirect drive means is

provided for driving the spindle, the drive means comprising a motor mounted independently of the respective spindle and a drive belt for transmitting the drive to the rotary spindle.

- 5 10. A device according to any preceding claim which is arranged for writing to and verifying a hard or floppy magnetic disc or a CD Rom.
 - 11. A method of preparing media storage discs comprising the steps of mounting a media disc on a rotary carrier supported on a platform, servowriting data to the mounted media disc with a write head and verifying the mounted media disc using a certifier head without removing the media disc from the rotary carrier between the servowriting and verifying steps.
- 12. A device for preparation of a media storage disc comprising a single

 15 monolithic support platform, a rotary carrier arranged for rotation of a media

 disc supported on said platform, a write head arranged for substantially radial

 movement relative to said carrier and for servo writing of data to said media

 disc and indirect drive means for driving the rotary carrier, the drive means

 comprising a motor mounted independently of the rotary carrier, and coupling

 20 means for transmitting the drive to the rotary carrier whilst minimising the

 transmission of any undesirable vibration.

- 13. A device for preparation of a media storage disc comprising a single monolithic support platform, a rotary carrier arranged for rotation of a media disc supported on said platform, a certifier head arranged for substantially radial movement relative to said carrier and for verification of the media disc and indirect drive means for driving the rotary carrier, the drive means comprising a motor mounted independently of the rotary carrier, and coupling means for transmitting the drive to the rotary carrier whilst minimising the transmission of any undesirable vibration.
- 10 14. A device according to Claim 12 or Claim 13 in which the coupling means comprises a resilient coupling means disposed in substantially axial alignment with the rotary carrier.
- 15. A device according to Claim 12 or 13 in which the coupling means15 comprises a drive belt.
 - 16. A device according to any one of Claims 12 to 15 in which at least one of the rotary carrier, the certified head and the write head is carried on an air bearing.

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17. A device for preparation of a media storage disc comprising:

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a single monolithic support platform, a rotary carrier supported on said platform and arranged for rotation of a media disc on an air bearing system, the carrier being driven by a motor mounted independently of the rotary carrier and arranged to drive the carrier via resilient coupling means; and

a write head arranged for substantially radial movement relative to said carrier and for servowriting of data to said media disc, the write head being carried on an air bearing system.

18. A device for preparation of a media storage disc comprising:

a single monolithic support platform, a rotary carrier supported on said platform and arranged for rotation of a media disc on an air bearing system, the carrier being driven by a motor mounted independently of the rotary carrier and arranged to drive the carrier via a drive belt; and

a write head arranged for substantially radial movement relative to said

carrier and for servowriting of data to said media disc, the write head being

carried on an air bearing system.

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(71) Applicant (for all designated States except US): WEST-WIND AIR BEARINGS LTD. [GB/GB]; Holton Road, Holton Heath, Poole, Dorset BH16 6LN (GB).

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

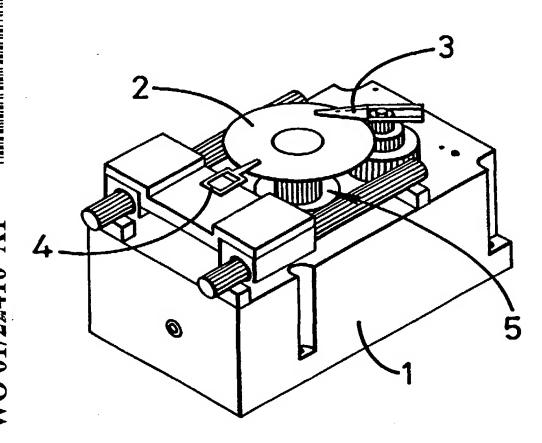
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

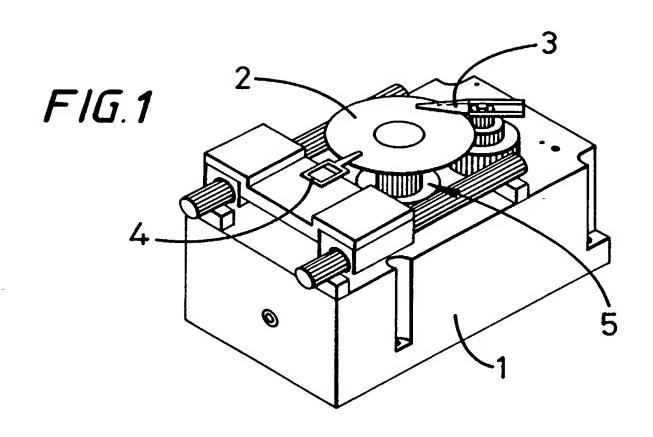
(54) Title: MANUFACTURE OF DATA STORAGE DEVICES

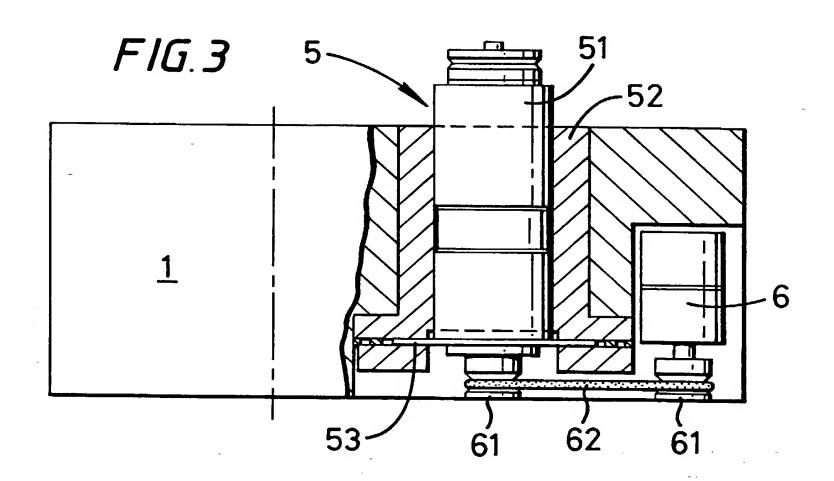


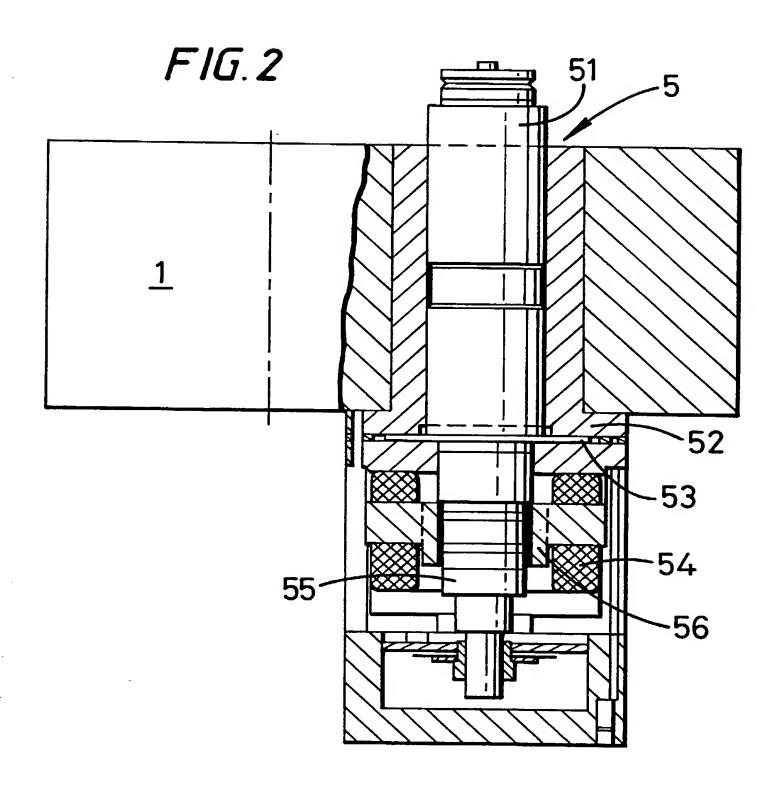
(57) Abstract: A device and method for preparing media discs (2) in which servowriting and verification of the media may be carried out simultaneously. A common monolithic platform (1) is provided which supports air bearing systems which allow movement of a media disc rotary carrier (5), a servowriting headstack (3) and certifier headstack (4). Indirect drive may be provided to the rotary carrier (5) via coupling means (62).

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Nixon & Vanderhye P.C. (10/99) (Domestic Non-Assigned/Foreign)

RULE 63 (37 C.F.R. 1.63) DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names, are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: Manufacture of Data Storage Devices the specification of which (check applicable box(s)): is attached hereto \boxtimes (Atty Dkt. No. as U.S. Application Serial No was filed on on 06.09.00 was filed as PCT International application No. PCT/GB00/03414 团 and (if applicable to U.S. or PCT application) was amended on I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amenament referred to above. I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with 37 C.F.R. 1.56. I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any toreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed or, it no priority is claimed, before the filing date of this application: Priority Foreign Application(s): Day/Month/Year Filed 20.09.99 and 27.04.00 respectively Country GREAT BRITAIN Application Number 9922238.2 and 0010272.3 I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below. Date/Month/Year Filed Application Number I hereby claim the benefit under 35 U.S.C. 120/365 of all prior United States and PCT international applications listed above or below and, insofar as the subject matter of each of the claims of this application is not disclosed in such prior applications in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. 1.56 which occurred between the filing date of the prior applications and the national or PCT international filing date of this application: Status: patented Prior U.S./PCT Application(s): pending, abandoned Day/Month/Year Filed Application Serial No. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon. And on behalf of the owner(s) hereof, I hereby appoint NIXON & VANDERHYE P.C., 1100 North Glebe Rd., 8th Floor, Arlington, VA 22201-4714, telephone number (703) 816-4000 (to whom all communications are to be directed), and the following attorneys thereof (of the same address) individually and collectively owner's/owners' attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and with the resulting patent: Arthur R. Crawlord, 25327; Larry S. Nixon, 25640; Robert A. Vanderhye, 27076; James T. Hosmer, 30184; Robert W. Faris, 31352; Richard G. Besha, 22770; Mark E. Nusbaum, 32348; Michael J. Keenan, 32106; Bryan H. Davioson, 30251; Stanley C. Spooner, 27393; Leonard C. Mitchard, 29009; Duane M. Byers, 33363; Jeffry H. Nelson, 30481; John R. Lastova, 33149; H. Warren Burnam, Jr. 29366; Thomas E. Byrne, 32205; Mary J. Wilson, 32955; J. Scott Davidson, 33489; Alan M. Kagen, 36178; Robert A. Molan, 29834; B. J. Sadoff, 36663; James D. Berquist, 34776; Updeep S. Gill, 37334; Michael J. Shea, 34725; Donald L. Jackson, 41090; Michelle N. Lester, 32331; Frank P. Presta, 19828; Joseph S. Presta, 35329 I also authorize Nixon & Vanderhye to delete any attorney names/numbers no longer with the firm and to act and rely solely on instructions directly communicated from the person, assignee, attorney, firm, or other organization sending instructions to Nixon & Vanderhye on behalf of the owner(s). Date: Inventor's Signature: 1. CHRISTOPHER **GERRARD** Inventor: MI (last) CHRISTCHURCH, DORSET GREAT BRITAIN (state/country) Residence: (city) 7 19. GREAT BRITAI BURTON CHRISTCHURCH DORSET BH23 **Post Office Address:** 190 SALTSBURY ROAD (Zip Code) Date: Inventor's Signature: 2. BRITISH **POWELL** inventor: ROBIN (citizenship) (first) MILPITAS (last) CA, USA (state/country) Residence: (city) MILPITAS. DRIVE CA95035 USA Post Office Address:

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Nixon & Vanderhye P.C. (12/97)

RULE 63 (37 C.F.R. 1.63) DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe Lam the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names, are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled. Manufacture of Data Storage subject matter which is claimed and for which a patent is sought on the invention entitled: Devices the specification of which (check applicable box(s)): is attached hereto (Atty Dkt. No. as U.S. Application Serial No. was filed on was filed as PCT International application No. 06.09.00on PCT/GB00/03414 and (if applicable to U.S. or PCT application) was amended on I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amenament reterred to above. I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with 37 C.F.R. 1.56. I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed or, it no priority is claimed, before the filing date of this application: Priority Foreign Application(s): Day/Month/Year Filed 20.09.99 and 27.04.00 respectively Country
GREAT BRITAIN **Application Number** 9922238.2 and 0010272.3 I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below. Date/Month/Year Filed **Application Number** I hereby claim the benefit under 35 U.S.C. 120/365 of all prior United States and PCT international applications listed above or below and, insofar as the subject matter of each of the claims of this application is not disclosed in such prior applications in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. 1.56 which occurred between the filling date of the prior applications and the national or PCT international filing date of this application: Status: patented Prior U.S./PCT Application(s): Day/Month/Year Filed pending, abandoned Application Serial No. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon. And on behalf of the owner(s) hereof, I hereby appoint NIXON & VANDERHYE P.C., 1100 North Glebe Rd., Bin Floor, Arlington, VA 22201-4714, telephone number (703) 816-4000 (to whom all communications are to be directed), and the following attorneys thereof (of the same address) individually and collectively owners attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and with the resulting patent: Arthur R. Crawford, 25327; Larry S. Nixon, 25640; Robert A. Vanderhye, 27076; James T. Hosmer, 30184; Robert W. Faris, 31352; Richard G. Besha, 22770; Mark E. Nusbaum, 32348; Michael J. Keenan, 32106; Bryan H. Davioson, 30251; Stanley C. Spooner, 27393; Leonard C. Mitchard, 29009; Duane M. Byers, 33363; Jeffry H. Nelson, 30481; John R. Lastova, 33149; H. Warren Burnam, Jr. 29366; Thomas E. Byrne, 32205; Mary J. Wilson, 32955; J. Scott Davidson, 33489; Alan M. Kagen, 36178; Robert A. Molan, 29834; B. J. Sadoff, 36663; James D. Berquist, 34776; Updeep S. Gill, 37334; Michael J. Shea, 34725; Donald L. Jackson, 41090; Michelle N. Lester, 32331; Frank P. Presta, 19828; Joseph S. Presta, 35329 I also authorize Nixon & Vanderhye to delete any attorney names/numbers no longer with the firm and to act and rely solely on instructions directly communicated from the person, assignee, attorney, firm, or other organization sending instructions to Nixon & Vanderhye on behalf of the owner(s). Date: Inventor's Signature: 1. BRITISH Inventor: P GERRARD (last) CHRISTCHURCH. DORSET GREAT BRITAIN (state/country) Residence: (city) 715. GREAT BRITAI 190 SALISBURY **Post Office Address:** CHRISTCHURCH DORSET **RH23** (Zip Code) Inventor's Signature: 2 BRITISH POWELL Inventor: ROBIN (citizenship) CA, USA (state/country) Residence: (city)

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Nixon & Vanderhye P.C. (12/97)

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